

CHAPTER 3
AIRWORTHINESS STANDARDS
NORMAL CATEGORY ROTORCRAFT

MISCELLANEOUS GUIDANCE (MG)

AC 27 MG 7. HOUR METERS OR TIME-IN-SERVICE RECORDING DEVICES IN ROTORCRAFT.

a. Explanation.

(1) Time in service is a required maintenance record according to § 91.173(a)(2)(i). Manual recording (rather than automatic) of the rotorcraft time in service is required whether or not the rotorcraft is equipped with a time accumulating device or hour meter. Time recording devices (hour meters) are optional and not required by the maintenance or operating rules or as a part of the aircraft type design.

(2) Time in service is defined in FAR Part 1 as follows: "...with respect to maintenance time records, means the time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing."

(3) The allowable total time in service, that is, service life or retirement time, has been typically specified for critical rotorcraft components that were subject to fatigue. The life was determined under § 27.571 or its predecessor standards.

(4) Hour meters may be mechanical and a part of a recording tachometer. They may be electrical and activated by the main battery switch, engine oil pressure, or some other source. These devices may not record "real time" when an engine or rotor is at idle speed or when deactivated by an oil pressure sensor switch. This real time omission is not considered significant in the life of a rotorcraft if the design and installation of the sensor minimizes this omission. However, for an individual aircraft that is used extensively, the omission of real time may become significant, and the time in service should be adjusted prior to recording the time in service in the aircraft records.

b. Procedures.

(1) Time in service must be recorded in the aircraft maintenance records.

(2) Hour meters are used to accumulate operating time. The meters may be activated by various sensors/switches. The type design data should include hour meter installation data including the sensor/switch location and any adjustment or "rigging" information to ensure proper installation.

(3) One acceptable installation of a sensor/switch would activate the hour meter whenever the collective pitch control was moved from the lowest pitch stop position.

That is, real time in service was recorded whenever the collective control was moved from the "full down" collective position.

(i) The location of the sensor is important to ensure time in service is measured when collective lift or thrust of the main rotor is desired.

(ii) Time in service will not be accumulated in flight whenever full down (or near full down) collective is used, such as in some phases of autorotation. However, collective controls are used to maintain proper rotor speed during autorotation.

(iii) Time in service should be corrected (increased) for individual aircraft whenever "full down" collective is used a significant amount.

(4) If the hour meter installation is significantly deficient in recording real time in service, corrections must be made or the installation changed to eliminate any significant deficiency in the correct time in service.